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NMR INVESTIGATION OF THE MOLECULAR MOBILITY AND STRUCTURE OF POLYSULPHONE–POLYBUTADIENE AND POLYSULPHONE–POLYETHYLENE OXIDE BLOCK COPOLYMERS*

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Molecular mobility in polyblock regular alternating block copolymers has been investigated by pulsed NMR in the temperature range 173–463°K. It was found that phase microsegregation in polysulphone–polybutadiene block copolymers is only very slightly dependent on their composition. This is due to the incompatibility of the oligobutadiene and oligosulphone components. The glass temperatures and molecular mobilities of flexible and rigid blocks in these copolymers coincide with corresponding parameters of the initial oligomers. However, at elevated temperatures there is a marked reduction in mobility of the oligobutadiene block compared with that of the initial oligomer. Owing to partial compatibility of the oligoethylene oxide and oligosulphone components in polysulphone–polyethylene oxide block copolymers the glass temperatures, phase micro-segregation and mobility of flexible and rigid blocks are largely dependent on the copolymer composition.

THE molecular mobility of homopolymers in cases where chain segments of the latter are incorporated in block copolymers is of major interest to investigators. Pulsed NMR is a particularly fruitful method for use in such investigations. On previous occasions [1–3] the experiments involved two- or three-block thermo-

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